

CLAIMS

1. Composite grinding roller (1), produced by casting, comprising peripheral inserts (5) made of a material with high wear resistance and great hardness, sealed during said casting in a ductile matrix (19), said roller (1) comprising first zones subjected to heavy wear (14) as well as second zones subjected to light wear (13), wherein in said first zone (14), said roller (1) has, on its peripheral surface, inserts (5) with an abutting part (6,7) and in said second zone (13) a non-abutting part, the spacing in said non-abutting part (12) being filled by said ductile material (19) of the cast matrix, allowing sufficient mechanical fixation for the inserts.

15 2. Roller as in Claim 1, wherein the abutting surfaces (6) and (7) coming into contact with their neighbours in successive inserts have a contact line corresponding to the radii of the circle formed by the roller (1).

20 3. Roller as in Claim 1 or 2, wherein the ratio of the lengths of the abutting faces to the lengths of the zones where the faces do not abut is greater than or equal to 0.2.

25 4. Roller as in Claim 3, wherein the ratio between the lengths of the zones where the faces abut to the lengths of the zones where the faces do not abut is between 0.2 and 20.

30 5. Roller as in any one of Claims 1 to 4, wherein the wear resistance of the inserts (5), in particular in the abutting parts, is increased by a ceramic reinforcement selected from the group of oxides, carbides, nitrides or borides.

6.           Roller as in any one of the preceding claims, wherein said insert (5) comprises at least one undercut (15) that allows its sealing into said matrix cast in ductile material (19).